MSI

MICRO-STAR INTERNATIONAL

Fuzzy CX700/CX700D

MS-9802 (V1.X) Mainboard

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Revision History

Revision	Revision History	Date
V1.0	First release	January 2007

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

Visit the MSI website at *http://www.msi.com.tw/program/service/faq/faq/esc_faq_list.php* for FAQ, technical guide, BIOS updates, driver updates, and other information.

Contact our technical staff at *http://support.msi.com.tw/*.

Safety Instructions

1. Always read the safety instructions carefully.

2. Keep this User's Manual for future reference.

3. Keep this equipment away from humidity.

4. Lay this equipment on a reliable flat surface before setting it up.

5. The openings on the enclosure are for air convection hence protects the equipment from overheating. DO NOT COVER THE OPENINGS.

6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.

7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.

8. Always Unplug the Power Cord before inserting any add-on card or module.

9. All cautions and warnings on the equipment should be noted.

10. Never pour any liquid into the opening that could damage or cause electrical shock.

11. If any of the following situations arises, get the equipment checked by service personnel:

    † The power cord or plug is damaged.
    † Liquid has penetrated into the equipment.
    † The equipment has been exposed to moisture.
    † The equipment does not work well or you can not get it work according to User's Manual.
    † The equipment has dropped and damaged.
    † The equipment has obvious sign of breakage.

12. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT UNCONDITIONED, STORAGE TEMPERATURE ABOVE 60^{0}C (140^{0}F), IT MAY DAMAGE THE EQUIPMENT.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

☞ 警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成無線電干擾，在這種情況下，使用者會被要求採取某些適當的對策。

廢電池請回收

For better environmental protection, waste batteries should be collected separately for recycling or special disposal.

FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the measures listed below.

> † Reorient or relocate the receiving antenna.
>
> † Increase the separation between the equipment and receiver.
>
> † Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
>
> † Consult the dealer or an experienced radio/television technician for help.

Notice 1
The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2
Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.

Micro-Star International
MS-9802

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

iv

WEEE (Waste Electrical and Electronic Equipment) Statement

TÜRKÇE

Çevreci özelliğiyle bilinen MSI dünyada çevreyi korumak için hatırlatır:

Avrupa Birliği (AB) Kararnamesi Elektrik ve Elektronik Malzeme Atığı, 2002/96/EC Kararnamesi altında 13 Ağustos 2005 tarihinden itibaren geçerli olmak üzere, elektrikli ve elektronik malzemeler diğer atıklar gibi çöpe atılamayacak ve bu elektronik cihazların üreticileri, cihazların kullanım süreleri bittikten sonra ürünleri geri toplamakla yükümlü olacaktır. Avrupa Birliği'ne satılan MSI markalı ürünlerin kullanım süreleri bittiğinde MSI ürünlerin geri alınması isteği ile işbirliği içerisinde olacaktır. Ürünlerinizi yerel toplama noktalarına bırakabilirsiniz.

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Záleží nám na ochraně životního prostředí - společnost MSI upozorňuje...

Podle směrnice Evropské unie ("EU") o likvidaci elektrických a elektronických výrobků 2002/96/EC platné od 13. srpna 2005 je zakázáno likvidovat "elektrické a elektronické výrobky" v běžném komunálním odpadu a výrobci elektronických výrobků, na které se tato směrnice vztahuje, budou povinni odebírat takové výrobky zpět po skončení jejich životnosti. Společnost MSI splní požadavky na odebírání výrobků značky MSI, prodávaných v zemích EU, po skončení jejich životnosti. Tyto výrobky můžete odevzdat v místních sběrnách.

MAGYAR

Annak érdekében, hogy környezetünket megvédjük, illetve környezetvédőként fellépve az MSI emlékezteti Önt, hogy...

Az Európai Unió („EU") 2005. augusztus 13-án hatályba lépő, az elektromos és elektronikus berendezések hulladékairól szóló 2002/96/EK irányelve szerint az elektromos és elektronikus berendezések többé nem kezelhetőek lakossági hulladékként, és az ilyen elektronikus berendezések gyártói kötelessé válnak az ilyen termékek visszavételére azok hasznos élettartama végén. Az MSI betartja a termékvisszavétellel kapcsolatos követelményeket az MSI márkanév alatt az EU-n belül értékesített termékek esetében, azok élettartamának végén. Az ilyen termékeket a legközelebbi gyűjtőhelyre viheti.

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Per proteggere l'ambiente, MSI, da sempre amica della natura, ti ricorda che....

In base alla Direttiva dell'Unione Europea (EU) sullo Smaltimento dei Materiali Elettrici ed Elettronici, Direttiva 2002/96/EC in vigore dal 13 Agosto 2005, prodotti appartenenti alla categoria dei Materiali Elettrici ed Elettronici non possono più essere eliminati come rifiuti municipali: i produttori di detti materiali saranno obbligati a ritirare ogni prodotto alla fine del suo ciclo di vita. MSI si adeguerà a tale Direttiva ritirando tutti i prodotti marchiati MSI che sono stati venduti all'interno dell'Unione Europea alla fine del loro ciclo di vita. È possibile portare i prodotti nel più vicino punto di raccolta.

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Chapter 1
Getting Started

Thank you for choosing the Fuzzy CX700/CX700D (MS-9802 v1.X) Mini ITX mainboard from MSI.

Based on the innovative VIA CX700/ CX700M/ CX700M2 controller for optimal system efficiency, the Fuzzy CX700/CX700D accommodates VIA C7/ Eden/ Eden ULV processor and supports one 240-pin 400/533MHz DDR2 DIMM slot to provide the maximum of 2GB memory capacity.

Noiseless, fanless and low power consumption are the advantages of the Fuzzy CX700/CX700D, making it an ideal choice for IPC special application.

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Mainboard Specifications

Processor Support
- VIA C7/ Eden/ Eden ULV processor with nanoBGA2 footprint
- 3-pin CPU fan pinheader with Smart Fan Speed Control
- Power Saver™ Technology enabled

Supported FSB
- 400/ 533 MHz

Chipset
- Single chip solution: VIA CX700/ CX700M/ CX700M2

Memory Support
- DDR2 400/533 SDRAM (2GB Max) or ECC DDR2 400 only
- 1 DDR2 DIMM slot (240pin / 1.8V)

LAN
- 2 PCI Gb LAN by Realtek RTL8110SC

Audio
- Realtek® ALC888 7.1-channel HDA codec
- 6 watt amplifier

IDE
- 1 40-pin IDE connector
- Supports 1 IDE device

CF
- 1 CF Type II socket

SATA
- 2 SATA II ports by VIA CX700/ CX700M/ CX700M2
- Supports storage and data transfers at up to 300MB/s

Expansion Slots
- 1 PCI slot
- 1 Mini PCI socket

Connectors

- **Rear I/O**
  - 1 PS/2 mouse port
  - 1 PS/2 keyboard port
  - 1 COM port stack connector (2 RS-232 ports)
  - 1 VGA/ DVI stack connector
  - 2 RJ45/ USB stack connectors
  - 1 3-jack audio connector

- **On-Board Pinheaders**
  - 1 USB pinheader (2 ports)
  - 1 parallel port pinheader (LPT)
  - 2 COM ports pinheader (RS-232)
  - 1 LVDS pinheader
  - 1 DIO pinheader (4 IN/ 4 OUT)
  - 1 TV out pinheader
  - 1 audio pinheader (7.1-channel)
  - 1 amplifier pinheader
  - 1 front panel pinheader
  - 1 SMBUS pinheader
  - 1 CPU fan pinheader
  - 1 system fan pinheader
  - 2 SATA connectors

Form Factor

- Mini-ITX (17.0cm X17.0cm)

Mounting

- 4 mounting holes

Environmental

- **Operating Temperature**
  - Temperature: -10°C ~ 70°C
  - Humidity: 85% RH

- **Storage Temperature**
  - Temperature: -20°C ~ 80°C
  - Humidity: 25% ~ 90% RH

For more information on compatible components, please visit
http://www.msi.com.tw/program/products/server/svr/pro_svr_qvl.php

Watch Dog Timer Setting

Logical Device 7 (Game Port and GPIO Port 1)

CRF3 (PLED mode register. Default 0x00)

Bit [7:3] : Reserved .

Bit 2: select WDTO count mode.

   0   second

   1   minute

Bit [1:0]: select PLED mode

   00   Power LED pin is tri-stated.

   01   Power LED pin is droved low.

   10   Power LED pin is a 1Hz toggle pulse with 50 duty cycle.

   11   Power LED pin is a 1/4Hz toggle pulse with 50 duty cycle.

CRF4 (Default 0x00)

Watch Dog Timer Time-out value. Writing a non-zero value to this register causes the counter to load the value to Watch Dog Counter and start counting down. Reading this register returns current value in Watch Dog Counter instead of Watch Dog Timer Time-out value.

Bit [7:0]: = 0x00 Time-out Disable

   = 0x01 Time-out occurs after 1 second/minute

   = 0x02 Time-out occurs after 2 second/minutes

   = 0x03 Time-out occurs after 3 second/minutes

   ....

   = 0xFF Time-out occurs after 255 second/minutes

CRF5 (Default 0x00)

Bit [7] :   Reserved .

Bit [6] :   invert Watch Dog Timer Status

Bit 5:   Force Watch Dog Timer Time-out, Write only*

   1   Force Watch Dog Timer time-out event; this bit is self-clearing.

Bit 4:   Watch Dog Timer Status, R/W

   1   Watch Dog Timer time-out occurred.

   0   Watch Dog Timer counting

Bit [3:0]: These bits select IRQ resource for Watch Dog. Setting of 2 selects S MI.

Software code

```
SIO_IDX    equ   4EH
SIO_DTA    equ   4FH
Timer      equ   10          ;reset after 10 seconds
1.    Enter configuration mode
      mov  dx,SIO_IDX
      mov  al,87h
      out   dx,al
      out   dx,al

2     Set Pin118 to WDTO#
      mov  dx,SIO_IDX
      mov  al,2Bh
      out   dx,al
      mov  dx,SIO_DTA
      in    al,dx
      and  al,not 04h
      out   dx,al

3.    Set to and active LDN 08
      mov  dx,SIO_IDX
      mov  al,07h
      out   dx,al
      mov  dx,SIO_DTA
      mov  al,08h
      out   dx,al

      mov  dx,SIO_IDX
      mov  al,30h
      out   dx,al
      mov  dx,SIO_DTA
      in    al,dx
      or    al,01h
      out   dx,al

4.    Set WatchDog Timer
      mov  dx,SIO_IDX
      mov  al,0f4h
      out   dx,al
      mov  dx,SIO_DTA
      mov  al,Timer
      out   dx,al

5.    Exit configuration mode
      mov  dx,SIO_IDX
      mov  al,0AAh
      out   dx,al
```

Block Diagram
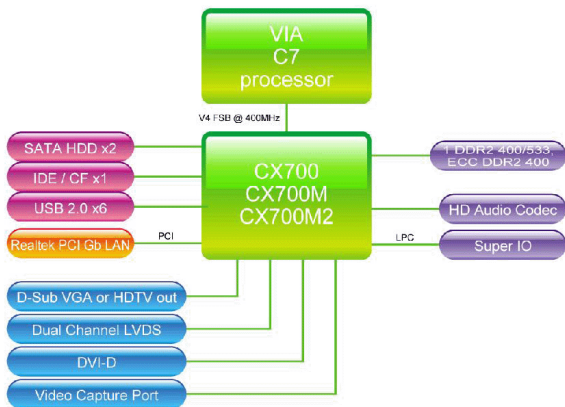
Mainboard Layout
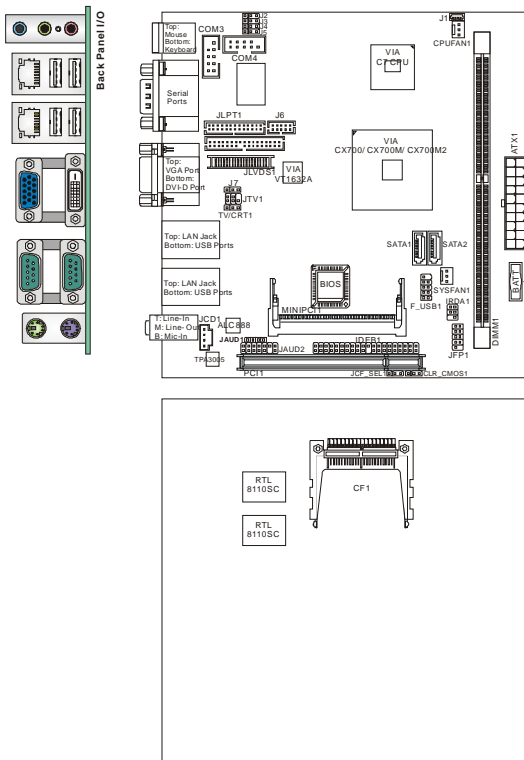
Fuzzy CX700/CX700D (MS-9802 v1.X) Mini ITX Mainboard

Board Dimension
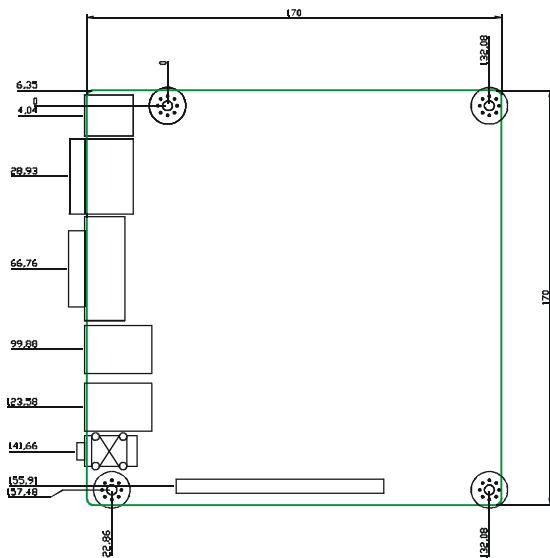
Chapter 2
Hardware Setup

This chapter provides you with the information about hardware setup procedures. While doing the installation, be careful in holding the components and follow the installation procedures. For some components, if you install in the wrong orientation, the components will not work properly.

Use a grounded wrist strap before handling computer components. Static electricity may damage the components.

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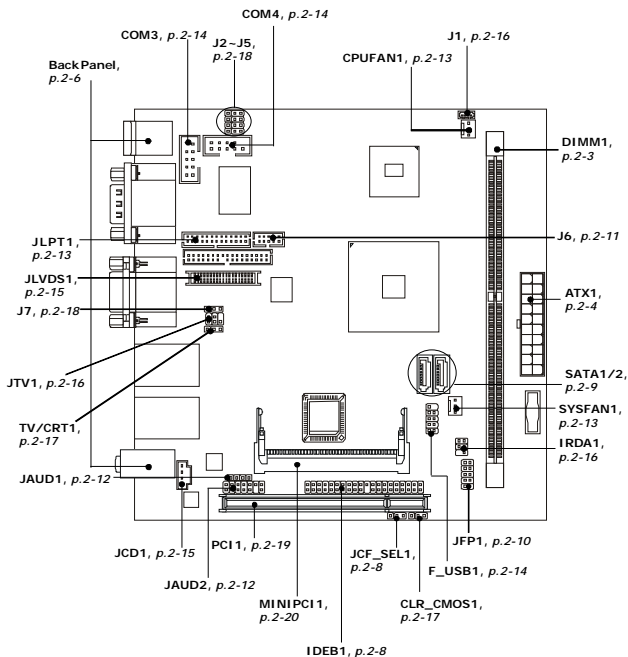
Memory

The mainboard provides one 240-pin **non-ECC DDR2 400/533** and **ECC DDR2 400** DIMM slot and supports up to 2GB system memory.

For more information on compatible components, please visit *http://www.msi.com. tw/program/products/server/svr/pro_svr_qvl.php*.

DDR2
240-pin, 1.8V

64x2=128 pin   56x2=112 pin

Installing DDR2 Modules

1. The memory module has only one notch on the center and will only fit in the right orientation.
2. Insert the memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the DIMM slot.

Important

You can barely see the golden finger if the memory module is properly inserted in the DIMM slot.

3. The plastic clip at each side of the DIMM slot will automatically close.

Volt   Notch
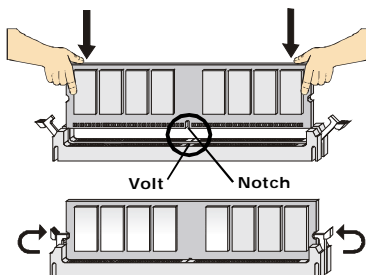
Power Supply

ATX 20-Pin System Power Connector: ATX1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

ATX1

11 1

20 10

ATX1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

FUSE RATING

DC OUTPUT : 350W

+5V 32A +12V 16A +3.3V 28A

-5V 0.3A -12V 0.8A +5VSB 2.0A

+5V and +3.3V TOTAL MAX: 220W

Configuration

CPU: C7 1G

Memory: Samsung PC2-3200 1GB

SATA HDD: HITACHI 80G

SATA HDD: Maxtor 80G

CDROM: Samsung CD-RW/DVD

A. Full Running (CPU / Memory / HDD / LAN stress & Play Audio CD)

	Measured Voltage	Measured Amp.	Watts
Mainboard +3.3V	3.4	1.33	4.5220
Mainboard +5V	5.05	1.07	5.4035
Mainboard 5VSB	5.14	0.04	0.2056
Mainboard +12V	11.86	0.67	7.9462
Mainboard Power Consumption			18.0773

B. Playing MP3 - Media Player

	Measured Voltage	Measured Amp.	Watts
Mainboard +3.3V	3.4	0.56	1.9040
Mainboard +5V	5.05	1.01	5.1005
Mainboard 5VSB	5.14	0.034	0.1748
Mainboard +12V	11.86	0.63	7.4718
Mainboard Power Consumption			14.6511

C. Running Network Application - Files Copy

	Measured Voltage	Measured Amp.	Watts
Mainboard +3.3V	3.4	1.33	4.5220
Mainboard +5V	5.05	1.04	5.2520
Mainboard 5VSB	5.14	0.039	0.2005
Mainboard +12V	11.86	0.6	7.1160
Mainboard Power Consumption			17.0905

D. Idle

	Measured Voltage	Measured Amp.	Watts
Mainboard +3.3V	3.4	0.56	1.9040
Mainboard +5V	5.05	0.94	4.7470
Mainboard 5VSB	5.14	0.04	0.2056
Mainboard +12V	11.86	0.39	4.6254
Mainboard Power Consumption			11.4820

E. S3 Mode

	Measured Voltage	Measured Amp.	Watts
Mainboard +3.3V	3.4	0	0.0000
Mainboard +5V	5.05	0	0.0000
Mainboard 5VSB	5.14	0.318	1.6345
Mainboard +12V	11.86	0	0.0000
Mainboard Power Consumption			1.6345

Back Panel
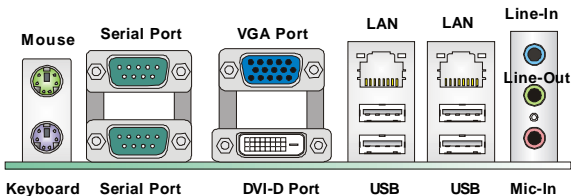
▶ **Mouse/Keyboard Connector**
The standard PS/2® mouse/keyboard DIN connector is for a PS/2® mouse/keyboard.

▶ **Serial Port**
The serial port is a 16550A high speed communications port that sends/ receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.

▶ **VGA Port**
The DB15-pin female connector is provided for video monitors.

▶ **DVI-D Port**
The DVI (Digital Visual Interface) connector allows you to connect an LCD monitor. It provides a high-speed digital interconnection between the computer and its display device. To connect an LCD monitor, simply plug your monitor cable into the DVI connector, and make sure that the other end of the cable is properly connected to your monitor (refer to your monitor manual for more information.)

Display Matrix				
	CRT	DVI	LVDS	TV OUT
CRT		V	V	X
DVI	V		V	V
LVDS	V	V		V
TV OUT	X	V	V	

V : Support   X : No Support

▶ **USB Connectors**
The UHCI (Universal Host Controller Interface) Universal Serial Bus root is for attaching USB devices such as keyboard, mouse, or other USB-compatible devices.

▶ **Audio Port Connectors**
These audio connectors are used for audio devices. You can differentiate the color of the audio jacks for different audio sound effects.

- **Line-In (Blue)** - Line In is used for external CD player, tapeplayer or other audio devices.
- **Line-Out (Green)** - Line Out, is a connector for speakers or headphones.
- **Mic-In (Pink)** - Mic In, is a connector for microphones.

▶ **LAN (RJ-45) Jacks**

The standard RJ-45 jacks are for connection to Local Area Network (LAN). You can connect network cables to them.

Activity Indicator ⎯⎯ ⎯⎯ Link Indicator

		Left LED	Right LED
		Active LED	100M/1000M Speed LED
LED Color		Yellow	Green/Orange
10M Cable Plug-in	No Transmission	OFF	OFF
	Transition	Yellow(Blinking)	OFF
100M Cable Plug-in	No Transmission	OFF	Green(Lighting)
	Transition	Yellow(Blinking)	Green(Lighting)
1000M Cable Plug-in	No Transmission	OFF	Orange(Lighting)
	Transition	Yellow(Blinking)	Orange(Lighting)
In S3/S4/S5 Standby State		OFF	OFF

Connectors

IDE Connector: IDEB1

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133 function. You can connect hard disk drives, CD-ROM and other IDE devices.

The Ultra ATA133 interface boosts data transfer rates between the computer and the hard drive up to 133 megabytes (MB) per second.

IDEB1

Compact Flash Card Slot: CF1

This Compact Flash slot shares one channel of the IDE controller. You can install one Compact Flash type I / type II device.

CF1
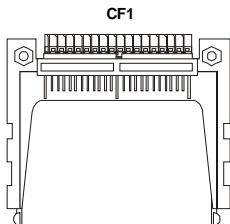
CF Mode Selecting Jumper: JCF_SEL1

This jumper is used to select Master/ Slave mode of the CF device.

JCF_SEL1

1 □□□

1 ■■□ 3   1 □■■ 3
Master   Slave
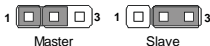
Important

* The CF1 slot and the IDEB1 connector shares and uses the same channel. CF1 and IDEB1 can support up to 2 IDE devices without CF device or 1 IDE device with 1 CF device.
* If you install two IDE devices, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.
* If you install one IDE device with ATA133 IDE cable and one CF device, you must configure the CF drive to Master mode by setting jumper JCF_SEL1. CF only supports Master mode by using the ATA133 IDE cable.
* CF only supports Slave mode by using ATA33 IDE cable.

Serial ATA Connectors: SATA1, SATA2

SATA1~SATA2 are high-speed SATA interface ports and support SATA data rates of 300MB/s. Each SATA connector can connect to 1 hard disk device and is fully compliant with Serial ATA 2.0 specifications.

SATA1 **SATA2**

Serial ATA cable

Take out the dust cover and connect to the hard disk devices

Connect to SATA1/2
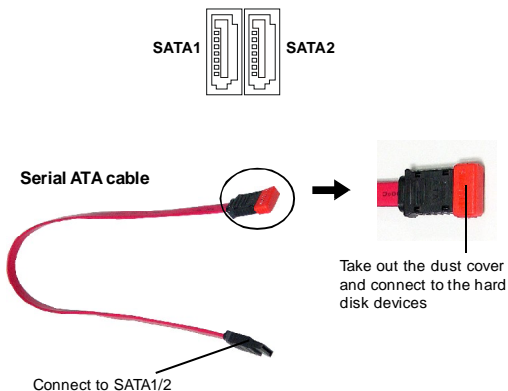
Important

Please do not fold the Serial ATA cable into 90-degree angle. Otherwise, data loss may occur during transmission.

Front Panel Connector: JFP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs. The JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JFP1 Pin Definition

JFP1

PIN	SIGNAL	DESCRIPTION
1	HD_LED+	Hard disk LED pull-up
2	FPPWR/SLP	MSG LED pull-up
3	HD_LED-	Hard disk active LED
4	FPPWR/SLP	MSG LED pull-up
5	RST_SW-	Reset Switch low reference pull-down to GND
6	PWR_SW+	Power Switch high reference pull-up
7	RST_SW+	Reset Switch high reference pull-up
8	PWR_SW-	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.
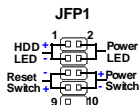
Reset Circuit
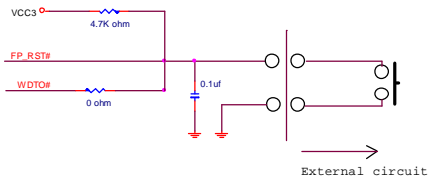
HDD LED Circuit
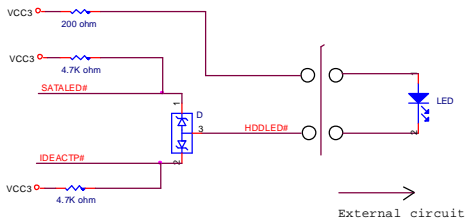
Power LED Circuit
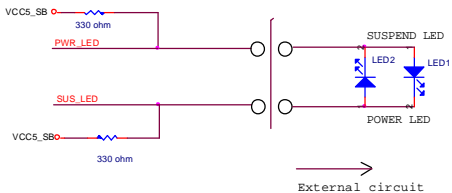
Power Button Circuit
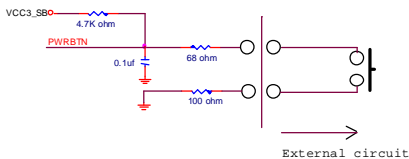
Digital IO Connector: J6

The J6 connects to the General-Purpose Input/Output (GPIO) peripheral module.

J6 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	VCC5F
3	N_GPO3	4	N_GPO1
5	N_GPO2	6	N_GPO0
7	N_GPI3	8	N_GPI1
9	N_GPI2	10	N_GPI0

J6

DIO Circuit
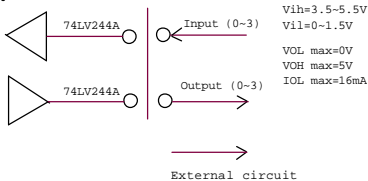
Audio Amplifier Connector: JAUD1

The 6W JAUD1 is used to connect audio amplifiers to enhance audio performance.

Pin Definition

JAUD1

1 ▢▢▢▢

PIN	SIGNAL
1	AMP_R+
2	AMP_R-
3	AMP_L+
4	AMP_L-

Front Audio Connector: JAUD2

This connector is designed to connect an optional audio bracket that provides extra front panel audio IO jacks.

13 ▢▢▢▢▢▢ 1
14 ▢▢▢▢▢▢ 2

JAUD2

Audio Bracket
(Optional)

JAUD2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	5V_SB	2	VCC3
3	SPDF_OUT	4	NA
5	GND	6	SPDF_IN
7	LEF_OUT	8	SURR_OUT_R
9	CEN_OUT	10	SURR_OUT_L
11	JAUD_DET	12	AUDIO GND
13	SIDE_SURR_L	14	SIDE_SURR_R

Parallel Port Header: JLPT1

The mainboard provides a 26-pin header for connection to an optional parallel port bracket. The parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

JLPT1

PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL	PIN	SIGNAL
1	RSTB#	2	AFD#	15	PRND6	16	GND
3	PRND0	4	ERR#	17	PRND7	18	GND
5	PRND1	6	PINIT#	19	ACK#	20	GND
7	PRND2	8	LPT_SLIN#	21	BUSY	22	GND
9	PRND3	10	GND	23	PE	24	GND
11	PRND4	12	GND	25	SLCT	26	GND
13	PRND5	14	GND				

Fan Power Connectors: CPUFAN1, SYSFAN1

The fan power connectors support system cooling fan with +12V. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.

```
 GND
 +12V
 SENSOR
CPUFAN1
```
```
 GND
 +12V
 SENSOR
SYSFAN1
```

Important

Please refer to the recommended CPU fans at VIA's official website or consult the vendors for proper CPU cooling fan.

Serial Port Connector: COM3, COM4

The mainboard provides two 9-pin headers as serial ports. These ports are 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to them.

COM3

COM4
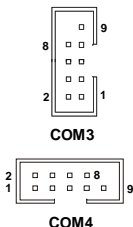
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	VCC_COM3	Power Source

Front USB Connector: F_USB1

The mainboard provides one USB 2.0 pinheader that is compliant with Intel® I/O Connectivity Design Guide. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD**, **digital cameras**, **MP3 players**, **printers**, **modems and the like**.

F_USB1

Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC

Important

Note that the pins of VCC and GND must be connected correctly to avoid possible damage.

CD-In Connector: JCD1

The connector is for CD-ROM audio connector.

JCD1

R
GND
L

LVDS Flat Panel Connector: JLVDS1

The LVDS (Low Voltage Differential Signal) connector provides a digital interface typically used with flat panels. After connecting an LVDS interfaced flat panel to the JLVDS1, be sure to check the panel datasheet and set the J1 LVDS Power Selection Jumper to a proper voltage.

Display Matrix				
	CRT	DVI	LVDS	TV OUT
CRT		V	V	X
DVI	V		V	V
LVDS	V	V		V
TV OUT	X	V	V	

V : Support   X : No Support

JLVDS1

1 ▭▭▭▭▭▭▭▭▭▭▭▭▭▭▭▭ 39
2 ▭▭▭▭▭▭▭▭▭▭▭▭▭▭▭▭ 40
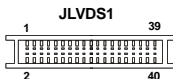
SIGNAL	PIN		SIGNAL
+12V	2	1	+12V
+12V	4	3	+12V
GND	6	5	+12V
GND	8	7	VCC3/VCC5
LCD_VDD	10	9	LCD_VDD
LDDC_DATA	12	11	LDDC_CLK
LVDS_VDDEN	14	13	L_BKLTCTL
GND	16	15	L_BKLTEN
LA_DATA0	18	17	LA_DATA0#
LA_DATA1	20	19	LA_DATA1#
LA_DATA2	22	21	LA_DATA2#
LA_CLK	24	23	LA_CLK#
LA_DATA3	26	25	LA_DATA3#
GND	28	27	GND
LB_DATA0	30	29	LB_DATA0#
LB_DATA1	32	31	LB_DATA1#
LB_DATA2	34	33	LB_DATA2#
LB_CLK	36	35	LB_CLK#
LB_DATA3	38	37	LB_DATA3#
GND	40	39	GND

2-15

TV-Out Connector: JTV1

The mainboard provides a TV-Out connector.

JTV1

Display Matrix				
	CRT	DVI	LVDS	TV OUT
CRT		V	V	X
DVI	V		V	V
LVDS	V	V		V
TV OUT	X	V	V	

V : Support   X : No Support

JTV1 Pin Definition

Pin	Description	Pin	Description
1	TVGND	2	LCVBS
3	LY	4	TVGND
5	LC	6	Key (no pin)

IrDA Infrared Module Header: IRDA1

The connector allows you to connect to IrDA Infrared module. You must configure the setting through the BIOS setup to use the IR function. IRDA1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.

Pin Definition

IRDA1

Pin	Signal
1	NC
2	Key (no pin)
3	VCC5
4	GND
5	IRTX
6	IRRX

I2C Bus Connector: J1

The mainboard provides one I2C (also known as I²C) Bus connector for users to connect System Management Bus (SMBus) interface.

Pin Definition

J1

Pin	Signal
1	VCC5F
2	SMBCLK
3	GND
4	SMBDATA-

Jumpers

Display Jumper: TV/CRT1

This jumper is used to select the display type.

TV/CRT1 1 □□□ □ 3   1 □ □□□ 3
1 □□□   TV Out   CRT Out

Display Matrix				
	CRT	DVI	LVDS	TV OUT
CRT		V	V	X
DVI	V		V	V
LVDS	V	V		V
TV OUT	X	V	V	

V : Support   X : No Support

Clear CMOS Jumper: CLR_CMOS1

There is a CMOS RAM onboard that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, set this jumper to clear data.

CLR_CMOS1 1 □□□ □ 3   1 □ □□□ 3
1 □□□   Clear Data   Keep Data

Important

You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

LCD Power Source Jumper: J7

This jumper is used to select the power source of LCD.

Pin Definition

Pin	Signal
1	VCC3
2	LCD_SRC (default VCC3)
3	VCC5

COM Port Power Jumpers: J2, J3, J4, J5

These jumpers specify the operation voltage of the serial port COM1~4.

Pin Definition

Pin	Signal
1	VCC12F
2	VCC_COM
3	VCC5F

Slots

PCI (Peripheral Component Interconnect) Slot

The PCI slot supports LAN cards, SCSI cards, USB cards, and other add-on cards that comply with PCI specifications. At 32 bits and 33 MHz, it yields a throughput rate of 133 MBps.

> **Warning**
>
> *This PCI slot can only support the 3.3V PCI card.*

32-bit PCI Slot

PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus pins as follows:

	Order 1	Order 2	Order 3	Order 4
32-bit PCI1	INT A#	INT B#	INT C#	INT D#

> **Important**
>
> *When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to configure any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.*

Mini PCI Slot

This is a 32 bits, 33 MHz and 133 MBps PCI slot, only select the MiniPCI adapters can be installed.

Mini PCI Slot

Installing Mini PCI Cards

1. Insert the card at an angle of 45 degrees into the Mini PCI slot, Line up the notch in the card with the small tab in the slot and slide the card into the slot until the golden finger is almost invisible.
2. Push the Mini PCI card down until the two snaps on either side of the card lock into place.

45°

Notch

Lock
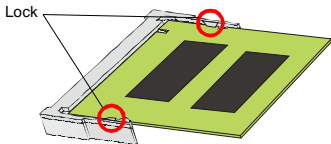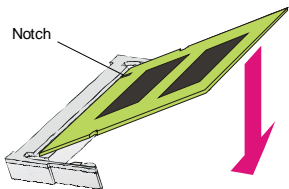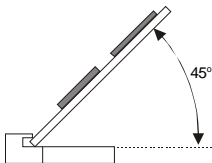
Removing Mini PCI Cards

If you need to remove a card in the Mini PCI slot, spread the tabs in the slot away from the notches in the card. The card should pop up slightly. Lift the card to a 45-degree angle and then gently slide the card out of the slot.
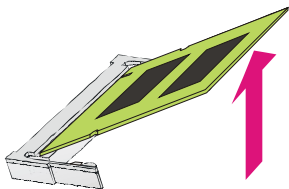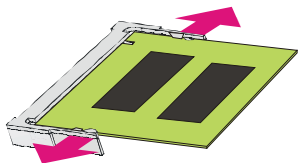
Chapter 3
BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use.
You may need to run the Setup program when:

≈ An error message appears on the screen during the system booting up, and requests you to run SETUP.

≈ You want to change the default settings for customized features.

MSI
MICRO-STAR INTERNATIONAL

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <F1> key to enter Setup.

Press F1 to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Important

1. The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

2. Upon boot-up, the 1st line appearing after the memory count is the BIOS version. It is usually in the format:

   P9802VMS V1.0 011507 where:

   1st digit refers to BIOS maker as A = AMI, W = AWARD, and P = PHOENIX.
   2nd - 5th digit refers to the model number.
   6th digit refers to the chipset as I = Intel, N = nVidia, and V = VIA.
   7th - 8th digit refers to the customer as MS = all standard customers.
   V1.0 refers to the BIOS version.
   011507 refers to the date this BIOS was released.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F7>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup menu, the first menu you will see is the Main Menu.

Main Menu

The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Sub-Menu

If you find a right pointer symbol (as shown in the right view) appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

▶ IDE Channel 0 Master
▶ IDE Channel 1 Master

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

The Menu Bar

```
                Phoenix - AwardBIOS CMOS Setup Utility
  Main   Advanced   Boot   Security   System   PC Health   Exit

   Date (mm:dd:yy)         Fri, Jan 13 2006         Item Help
   Time (hh:mm:ss)         23 : 59 : 1
                                                 Menu Level    ▶
 ▶ IDE Channel 0 Master   [WDC WD1600JS-00MHB0]
 ▶ IDE Channel 0 Slave    [ None]                Change the day, month,
 ▶ IDE Channel 1 Master   [ None]                year and century
 ▶ IDE Channel 1 Slave    [ None]

   Base Memory             640K
   Extended Memory         456704K
   Total Memory            457728K




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
     F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults
```

▶ **Main**
Use this menu for basic system configurations, such as time, date etc.

▶ **Advanced**
Use this menu to set up the items of special enhanced features available on your system's chipset.

▶ **Boot**
Use this menu to specify the priority of boot devices.

▶ **Security**
Use this menu to set Supervisor and User Passwords.

▶ **System**
This entry shows your system summary.

▶ **PC Health**
This entry monitors your hardware health status.

▶ **Exit**
This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.

Main
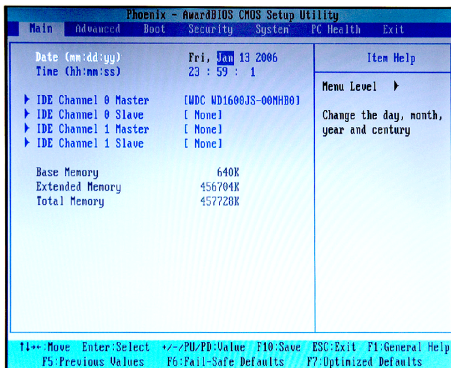
▶ **Date (mm:dd:yy)**
The date format is <Day>, <Month> <Date> <Year>.

▶ **Time (hh:mm:ss)**
The time format is <Hour> <Minute> <Second>.

▶ **IDE Channel 0/1 Master/Slave**
Press <Enter> to enter the sub-menu.

> ▶ **IDE HDD Auto-Detection**
> Press [Enter] to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
>
> ▶ **IDE Channel 0/1 Master/Slave**
> Selecting "manual" lets you set the remaining fields on this screen. It selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc.
> **Note:** PRECOMP=65535 means NONE!
>
> ▶ **Access Mode**
> Choose the access mode for this hard disk.

▶ **Capacity**
This setting shows the formatted size of the storage device. Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program.

▶ **Cylinder**
Set the number of cylinders for this hard disk.

▶ **Head**
Set the number of read/write heads.

▶ **Precomp**
This setting specifies the write precompensation.
Warning: Setting avalue of 65535 means no hard disk.

▶ **Landing Zone**
This setting shows cylinder location of the landing zone.

▶ **Sector**
This setting shows the number of sectors per track.

▶ **Base Memory**
This setting displays the amount of conventional memory detected during boot up.

▶ **Extended Memory**
This setting displays the amount of extended memory detected during boot up.

▶ **Total Memory**
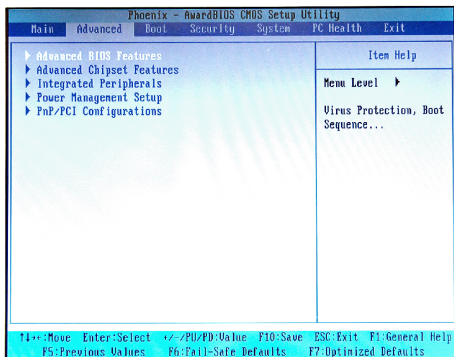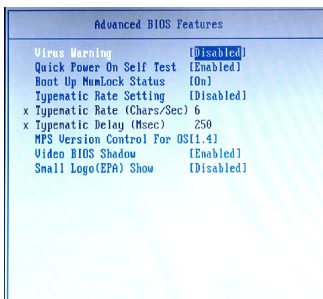This setting displays the total memory available in the system.

Advanced

▶ **Advanced BIOS Features**

▶ **Virus Warning**
The item is to set the Virus Warning feature for IDE Hard Disk boot sector

protection. If the function is enabled and any attempt to write data into this area is made, BIOS will display a warning message on screen and beep.

▶ **Quick Power On Self Test**
Select [Enabled] to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

▶ **Boot Up NumLock Status**
This setting is to set the Num Lock status when the system is powered on. Setting to [On] will turn on the Num Lock key when the system is powered on. Setting to [Off] will allow users to use the arrow keys on the numeric keypad.

▶ **Typematic Rate Setting**
This item is used to enable or disable the typematic rate setting including Typematic Rate & Typematic Delay.

▶ **Typematic Rate (Chars/Sec)**
After Typematic Rate Setting is enabled, this item allows you to set the rate (characters/second) at which the keys are accelerated.

▶ **Typematic Delay (Msec)**
This item allows you to select the delay between when the key was first pressed and when the acceleration begins.

▶ **MPS Version Control For OS**
This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system.

▶ **Video BIOS Shadow**
This allows you to copy Video BIOS to shadow RAM. When setting to [Enabled], the performance improves.

▶ **Small Logo(EPA) Show**
This item enables you to show the EPA logo (brand specific graphics) on the bootup screen. Settings are:
    [Disabled]   Shows the normal POST screen at boot.
    [Enabled]   Shows a still image (EPA logo) on the screen at boot.

▶ **Advanced Chipset Features**

```
            Advanced Chipset Features

▶ AGP & P2P Bridge Control
  System BIOS Cacheable      [Enabled]
  Video RAM Cacheable        [Disabled]
  Init Display First         [PCI Slot]
```

▶ **AGP & P2P Bridge Control**

```
            AGP & P2P Bridge Control

  VGA Share Memory Size      [64M]
  Direct Frame Buffer        [Enabled]
  Select Display Device      [CRT]
  Panel Type                 [07]
  Outport Port               [Channel 1]
  Dithering                  [Disabled]
  TV_type                    [NTSC]
  TV_Connector               [CVBS]
  HDTV_type                  [HDTV 720P]
  HDTV_Connector             [R/G/B]
```

▶ **VGA Share Memory Size**
The system shares memory to the onboard VGA card. This setting controls the exact memory size shared to the VGA card.

▶ **Direct Frame Buffer**
When [Enabled], a fixed VGA frame buffer from A000h to BFFFh and a CPU-to-PCI write buffer are implemented.

▶ **Select Display Device**
Use the field to select the type of device you want to use as the display(s) of the system.

▶ **Panel Type**
Use this field to specify the panel type.

▶ **Output Port**
Use this field to specify the video output channel.

▶ **Dithering**
Dithering is the most common means of reducing the color range of images down to the 256 (or fewer) colors seen in 8-bit GIF images. It is the process of juxtaposing pixels of two colors to create the illusion that a third color is present. Setting this field to [Enabled] can improve the appearance of a graphic when few colors are available.

*** Refer to the following table for configuration of *Panel Type*, *Output Port*, and *Dithering*.

Panel ID	Resolution	Channel	Dithering
0	640x480	1	Enable
1	800x600	1	Enable
2	1024x768	1	Enable
3	1280x768	1	Enable
4	1280x1024	2	Enable
5	1400x1050	2	Enable
6	1600x1200	2	Enable
7	1280x800	1	Enable
8	800x480	1	Enable
9	1024x768	2	Enable
A	1024x768	1	Disable
B	1024x768	2	Disable
C	1280x768	1	Disable
D	1280x1024	2	Disable
E	1400x1050	2	Disable
F	1600x1200	2	Disable

Dithering Enable is for 18 bits panel and Disable is for 24 bits panel.

▶ **TV Type**
Select the TV standard which is used as the video signal format of your TV if you have connected a TV to the system.

▶ **TV Connector**
This setting specifies the TV connector.

▶ **HDTV Type**
Select the HDTV standard which is used as the video signal format of your HDTV if you have connected a HDTV to the system.

▶ **HDTV Connector**
This setting specifies the HDTV connector.

▶ **System BIOS Cacheable**
Selecting [Enabled] allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

▶ **Video RAM Cacheable**
Selecting [Enabled] allows caching of the video memory (RAM) at A0000h to AFFFFh, resulting in better video performance. However, if any program writes to this memory area, a memory access error may result.

▶ **Init Display First**
This item specifies which VGA card is your primary graphics adapter.

▶ **Integrated Peripherals**
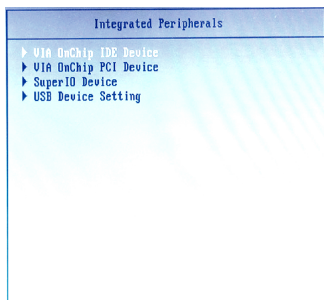
▶ **VIA OnChip IDE Device**
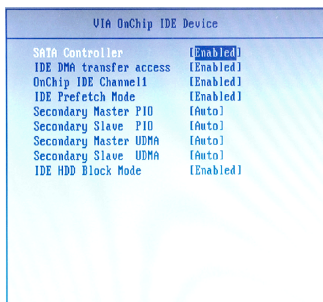
▶ **SATA Controller**
This setting enables/disables the on-chip SATA controller.

▶ **IDE DMA Transfer Access**
Setting to [Enabled] will open DMA bus master and execute DMA action in DOS, which will make the data transferring faster.

▶ **OnChip IDE Channel 1**
The integrated peripheral controller contains an IDE interface with support for one IDE channel. Choose [Enabled] to activate the IDE channel 1.

▶ **IDE Prefetch Mode**
The onboard IDE drive interfaces support IDE prefetching, for faster drive accesses. When you install a primary and/or secondary add-in IDE interface, set this option to [Disabled] if the interface does not support prefetching.

▶ **Secondary Master/Slave PIO**
The IDE PIO (Programmed Input/Output) fields let you set a PIO mode for the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In [Auto] mode, the system automatically determines the best mode for each device.

▶ **Secondary Master/Slave UDMA**
Ultra DMA 33/66/100/133 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows ME, XP or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33, Ultra DMA/66, Ultra DMA/100 and Ultra DMA/133, select [Auto] to enable BIOS support.

▶ **IDE HDD Block Mode**
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select [Enabled] for automatic detection of the optimal number of block read/writes per sector the drive can support.

▶ **VIA OnChip PCI Device**
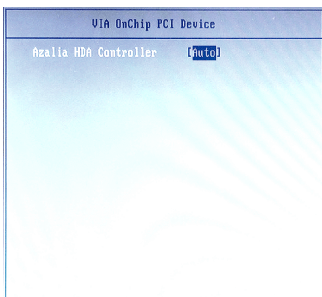
▶ **Azalia HDA Controller**
Azalia is the codename of "High Definition Audio." This setting controls the
High Definition Audio interface integrated in the Southbridge.

▶ **Super IO Device**

```
              SuperIO Device

 Onboard Serial Port 1        [3F8/IRQ4]
 Onboard Serial Port 2        [2F8/IRQ3]
 UART Mode Select             [Normal]
x RxD , TxD Active            Hi,Lo
x IR Transmission Delay       Enabled
x UR2 Duplex Mode             Half
x Use IR Pins                 IR-Rx2Tx2
 Onboard Serial Port 3        [3E8/IRQ 5]
 Onboard Serial Port 4        [2E8/IRQ 6]
 Onboard Parallel Port        [378/IRQ7]
 Parallel Port Mode           [SPP]
x EPP Mode Select             EPP1.7
x ECP Mode Use DMA            3
```

▶ **Onboard Serial Port 1 / 2**
Select an address and corresponding interrupt for Serial Port 1/2.

▶ **UART Mode Select**
This setting allows you to specify the operation mode for serial port 2.

[Normal]	RS-232C Serial Port
[IrDA]	IrDA-compliant Serial Infrared Port
[ASKIR]	Amplitude Shift Keyed Infrared Port

▶ **RxD, TxD Active**
This setting controls the receiving and transmitting speed of the IR
peripheral in use.

▶ **IR Transmission Delay**
This setting determines whether the IR transmission rate will be delayed
while converting to receiving mode.

▶ **UR2 Duplex Mode**
This setting controls the operating mode of IR transmission/reception. Under
[Full] Duplex mode, synchronous, bi-directional transmission/reception is
allowed. Under [Half] Duplex mode, only asynchronous, bi-directional trans-
mission/reception is allowed.

▶ **Use IR Pins**
Consult your IR peripheral documentation to select the correct setting of
the TxD and RxD signals.

▶ **Onboard Serial Port 3 / 4**
Select an address and corresponding interrupt for Serial Port 3/4.

▶ **Onboard Parallel Port**
This setting specifies the I/O port address and IRQ of the onboard parallel
port.

▶ **Parallel Port Mode**
[SPP]	Standard Parallel Port
[EPP]	Enhanced Parallel Port
[ECP]	Extended Capability Port
[ECP+EPP]	Extended Capability Port + Enhanced Parallel Port

To operate the onboard parallel port as Standard Parallel Port only, choose
[SPP]. To operate the onboard parallel port in the EPP mode simultaneously,
choose [EPP]. By choosing [ECP], the onboard parallel port will operate in
ECP mode only. Choosing [ECP + EPP] will allow the onboard parallel port to
support both the ECP and EPP modes simultaneously.

▶ **EPP Mode Select**
Select EPP port type 1.7 or 1.9, as required by your parallel peripheral.

▶ **ECP Mode Use DMA**
The ECP mode has to use the DMA channel, so choose the onboard parallel
port with the ECP feature. After selecting it, the following message will
appear: "ECP Mode Use DMA." At this time, the user can choose between
DMA channel [3] or [1].

▶ **USB Device Setting**


```
              USB Device Setting

USB 1.0 Controller      [Enabled]
USB 2.0 Controller      [Enabled]
USB Operation Mode      [High Speed]
USB Keyboard Function   [Enabled]
USB Mouse Function      [Enabled]
USB Storage Function    [Enabled]

*** USB Mass Storage Device Boot Setting ***
```
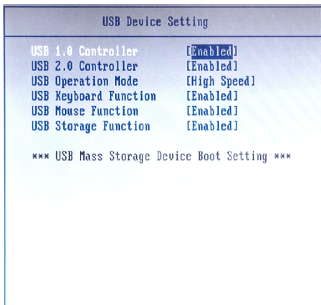
▶ **USB 1.1 Controller**
This setting is used to enable/disable the onboard USB 1.1 controller.

▶ **USB 2.0 Controller**
This setting is used to enable/disable the onboard USB 2.0 controller.

▶ **USB Operation Mode**
This setting controls the USB operation speed.

▶ **USB Keyboard / Mouse / Storage Function**
Set to [Enabled] if your need to use a USB-interfaced keyboard/mouse/ storage device in the operating system that does not support or have any USB driver installed, such as DOS and SCO Unix.

▶ **Power Management Setup**

```
                    Power Management Setup

ACPI function            [Enabled]
ACPI Suspend Type        [S3(STR)]
Power Management Option  [User Define]
HDD Power Down           [Disable]
Suspend Mode             [Disable]
Video Off Option         [Suspend -> Off]
Video Off Method         [V/H SYNC+Blank]
Soft-Off by PWRBTN       [Instant-Off]
Ac Loss Auto Restart     [Off]
▶ Wakeup Event Detect
```

▶ **ACPI Function**
This item is to activate the ACPI (Advanced Configuration and Power Management Interface) Function. If your operating system is ACPI-aware, such as Windows 98SE/2000/ME, select [Enabled].

▶ **ACPI Suspend Type**
This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME and Windows 2000, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:

[S1(POS)] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

[S3(STR)] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.

▶ **Power Management Option**
This item is used to select the degree (or type) of power saving and is related to these modes: *Suspend Mode* and *HDD Power Down*. There are three options for power management:

[Min Saving]   Minimum Power Management. Suspend Mode=1 Hour
[Max Saving]   Maximum Power Management. Suspend Mode=1 Min
[User Define] Allows end users to configure each mode separately.

▶ **HDD Power Down**
If HDD activity is not detected for the length of time specified in this field, the hard disk drive will be powered down while all other devices remain active.

▶ **Suspend Mode**
After the selected period of system inactivity, all devices except the CPU shut off.

▶ **Video Off Option**
This setting is used to control the mode in which the monitor will shut down. Setting options:

[Always On]   Monitor remains on during power-saving modes.
[Suspend -> Off]   Monitor blanked when system enters Suspend mode.
[Susp, Stby->Off] Monitor blanked when system enters either Suspend or Standby mode.
[All Modes ->Off] Monitor blanked when system enters any power sav

▶ **Video Off Method**
This setting determines the manner in which the monitor is blanked.

▶ **Soft-Off by PWRBTN**
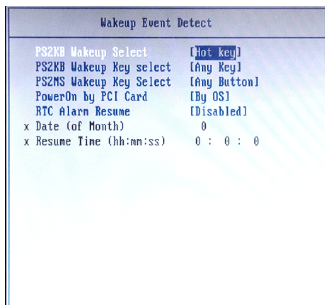This feature allows users to configure the power button function. Settings are:

[Instant-Off] The power button functions as a normal power-on/-off button.
[Delay 4 Sec.] When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

▶ **AC Loss Auto Restart**
This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

[Off]   Leaves the computer in the power off state.
[On]   Leaves the computer in the power on state.
[Former-sts]   Restores the system to the status before power failure or interrupt occurred.

▶ **Wakeup Event Detect**

```
             Wakeup Event Detect

PS2KB Wakeup Select       [Hot key]
PS2KB Wakeup Key select   [Any Key]
PS2MS Wakeup Key Select   [Any Button]
PowerOn by PCI Card       [By OS]
RTC Alarm Resume          [Disabled]
x Date (of Month)          0
x Resume Time (hh:mn:ss)   0 :  0 :  0
```

▶ **PS2 KB Wakeup Select**
The item specifies how the system will be awakened from power saving mode when input signal of the PS2 keyboard is detected. Use the <PageUp> & <PageDown> keys to select the options. When selecting [Password], enter the desired password.

▶ **PS2 KB Wakeup Key Select**
This setting only works when *PS2 KB Wakeup Select* is set to [Hot Key].

▶ **PS2 MS Wakeup Key Select**
This setting determines whether the system will be awakened from power saving modes when input signal of the PS/2 mouse is detected.

▶ **Power On by PCI Card**
When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PCI PME (Power Management Event).
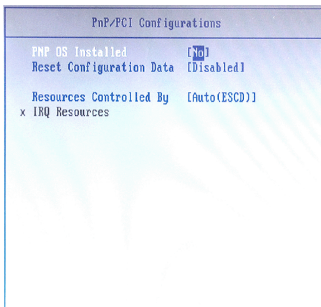
▶ **RTC Alarm Resume**
When [Enabled], your can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

▶ **Date (of Month)**
When *RTC Alarm Resume* is set to [Enabled], the field specifies the month for it.

▶ **Resume Time (hh:mm:ss)**
You can choose what hour, minute and second the system will boot up.

▶ **PnP/PCI Configurations**

```
              PnP/PCI Configurations

    PNP OS Installed         [No]
    Reset Configuration Data [Disabled]

    Resources Controlled By  [Auto(ESCD)]
  x IRQ Resources
```

▶ **PNP OS Installed**
When set to [Yes], BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows 98. When set to [No], BIOS will initialize all the PnP cards. So, select [Yes] if your operating system is Plug & Play aware.

▶ **Reset Configuration Data**
The ESCD (Extended System Configuration Data) NVRAM (Non-volatile Random Access Memory) is where the BIOS stores resource information for both PNP and non-PNP devices in a bit string format. When the item is set to [Enabled], the system will reset ESCD NVRAM right after the system is booted up and then set the setting of the item back to [Disabled] automatically.

▶ **Resources Controlled By**
The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 98/2000. If you set this field to [Manual], choose specific re-sources by going into each sub-menu that follows this field.

▶ **IRQ Resources**
Press <Enter> to enter the sub-menu.

▶ **IRQ 3/4/5/7/9/10/11/14/15**
These items specify the bus where the specified IRQ line is used.
The settings determine if BIOS should remove an IRQ from the pool of avail-able IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs

must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an [Reserved] setting to it. Onboard I/O is configured by BIOS. All IRQs used by onboard I/O are configured as [Available]. If all IRQs are set to [Reserved], and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices.

Important

IRQ (Interrupt Request) lines are system resources allocated to I/O devices. When an I/O device needs to gain attention of the operating system, it signals this by causing an IRQ to occur. After receiving the signal, when the operating system is ready, the system will interrupt itself and perform the service required by the I/O device.

Boot
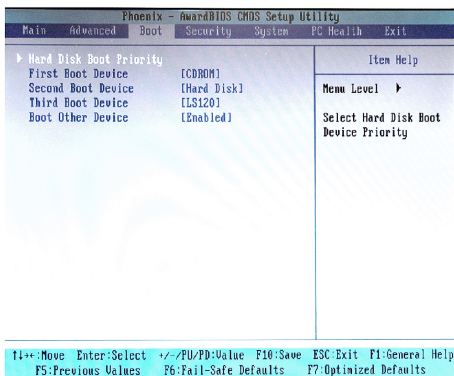
▶ **Hard Disk Boot Priority**
This setting allows users to set the boot priority of the specified hard disk devices. First press <Enter> to enter the sub-menu. Then you may use the arrow keys (↑↓) to select the desired device, then press <+>, <-> or <PageUp>, <PageDown> key to move it up/down in the priority list.
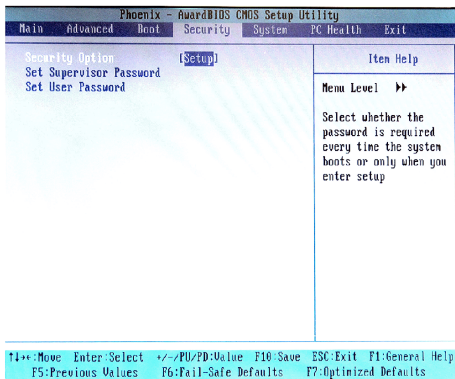
▶ **First / Second / Third Boot Device**
The items allow you to set the sequence of boot devices where BIOS attempts to load the disk operating system.

▶ **Boot Other Device**
Setting the option to [Enabled] allows the system to try to boot from other device if the system fails to boot from the first/second/third boot device.

Security

▶ **Security Option**
Select whether the password is required every time the system boots or only when you enter Setup.

System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.
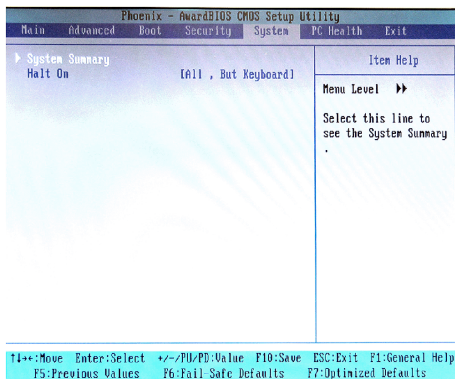
▶ **Set Supervisor Password**
Supervisor Password controls access to the BIOS Setup utility.

▶ **Set User Password**
User Password controls access to the system at boot.

System

▶ **System Summary**
These items show the hardware specifications of your system. Read only.

▶ **Halt On**
The setting determines whether the system will stop if an error is detected at boot.
When the system stops for the errors preset, it will halt on for 15 seconds and then
automatically resume its operation. Available options are:

      [All Errors]   The system stops when any error is detected.
      [No Errors]   The system doesn't stop for any detected error.
   [All, But Keyboard]   The system doesn't stop for a keyboard error.

PC Health

```
              Phoenix - AwardBIOS CMOS Setup Utility
 Main    Advanced   Boot   Security   System   PC Health   Exit

 Current System Temp.      33°C/ 91°F                    Item Help
 Current CPU Temperature   44°C/111°F
 Current CPUFAN Speed      8544 RPM          Menu Level  ▶▶
 Current SYSFAN Speed      0 RPM
 Vcore                     0.98 V            Select this line to
 VDDR2                     1.83 V            see the System Summary
 Vcc3                      3.21 V            .




 ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help
    F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults
```

▶ **Current System Temp., Current CPU Temperature, Current CPUFAN Speed,
Current SYSFAN Speed, Vcore, VDDR2, VCC3**
These items display the current status of all of the monitored hardware devices/
components such as CPU voltage, temperatures and all fans' speeds.

Exit
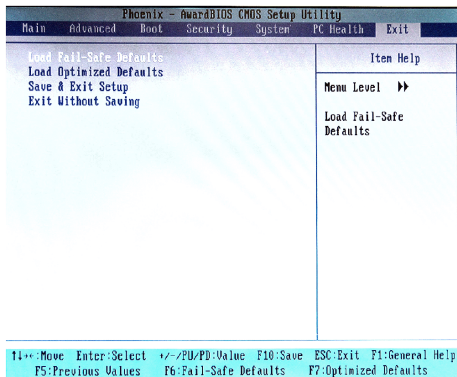
▶ **Load Fail-Safe Defaults**
Use this menu to load the default values set by the BIOS vendor for stable system performance.

▶ **Load Optimized Defaults**
Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

▶ **Save & Exit Setup**
Save changes to CMOS and exit setup.

▶ **Exit Without Saving**
Abandon all changes and exit setup.